Claims

[c1] An apparatus for monitoring the closed position of a fuel cap relative to a tank connection pipe, comprising:
a fuel cap;
a tank connection pipe having a wall;
ratchet means connected to the fuel cap for controlling tightening of the fuel cap to the tank connection pipe;
a magnet connected to the fuel cap;
a magnetic switch connected to the tank connection pipe; and
means for sensing abrupt movement of the magnet relative to the magnetic switch, indicating a locked fuel cap condition, by sensing an abrupt change in magnetic field strength of the magnet.

[c2] The apparatus of Claim 1, wherein the magnetic switch is a reed switch.

[c3] The apparatus of Claim 2, wherein the reed switch is a form A, normally open, reed switch.

[c4] The apparatus of Claim 1, wherein the magnetic switch is embedded within the wall of the tank connection pipe.

[c5] The apparatus of Claim 1, wherein the fuel cap includes male threading engageable with female threading on an interior surface of the wall of the tank connection pipe.

[c6] A method for monitoring the closed position of a fuel cap relative to a tank connection pipe, comprising the steps of:
providing a fuel cap;
providing a tank connection pipe;
providing a magnet connected to the fuel cap;
providing a magnetic switch connected to the tank connection pipe; and
sensing abrupt movement of the magnet relative to the magnetic switch, indicating a tightened fuel cap condition, by sensing an abrupt change in magnetic field strength of the magnet.

[c7] The method of Claim 6, wherein the step of sensing abrupt movement further

comprises the steps of:

providing a circuit with a pickup coil and an output;

snapping the fuel cap into a rest condition;

inducing a current pulse in the pickup coil;

sensing the current pulse;

producing a logic level high voltage at the output; and

displaying an indication of a tightened fuel cap condition.